



**SentinelRadio**  
Models 333-I and 333-W  
FM and AM

Before starting alignment:

## AM ALIGNMENT PROCEDURE

- (a) Check tuning dial adjustment by tuning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial pointer must be exactly even with the last line at the low frequency end of the AM dial calibration. If dial needle does not point exactly to last line move to correct position.
- (b) Use an accurately calibrated test oscillator with some type of output measuring device.
- (c) Place loop antenna in the same position it will be in when set is in the cabinet.

Steps	Place band switch for operation on:	Set receiver dial to:	TEST OSCILLATOR			Refer to parts layout diagram for location of trimmers mentioned below:
			Adjust test oscillator frequency to:	Use dummy antenna in series with output of test oscillator consisting of:	Attach output of test oscillator to:	
1	AM Band position	Any point where no interfering signal is received	Exactly 455 K. C.	0.2 Mfd. Condenser	High side to AM-Osc. stator plates of tuning condenser (10D). Low side to frame of condenser through .01 Mfd. condenser.	Adjust each of the 2nd 455 K. C. AM I. F. transformer trimmers for maximum output, then adjust each of the 1st 455 K. C. AM I. F. transformer trimmers for maximum output.
2	AM Band position	Exactly 1730 K.C.	Exactly 1730 K.C.		Receiver blue antenna lead Receiver black ground lead	Adjust 1730 K. C. oscillator trimmer for maximum output.
3	AM Band position	Approx. 1400 K. C.	Approx. 1400 K. C.		Receiver blue antenna lead Receiver black ground lead	Adjust 1400 K. C. AM Ant. trimmer for maximum output.

## FM ALIGNMENT

The only portion of this receiver which is used during FM reception, other than the AF and Power Supply, is the 12AT7 Dual Triode tube and its associated circuits. One triode of the tube is used for HF Oscillator and covers a band 27.75 MC above the 88 to 108 FM Band. The other triode is used for RF Input, Super-regenerator and Detector. This triode oscillates at 27.75 MC and is quenched by an RC network at about 25 KC.

In tuning this receiver on FM, it will be noticed that two signals will be received with a null point between them. These two signals will be substantially equal in tone and volume and either one can be used. They represent the frequency discrimination which takes place due to the receiver being tuned to one side of the carrier center frequency and this, therefore, is not the spot of greatest quieting. Greatest quieting is found at the null point, at which no frequency discrimination takes place and therefore no audio signal is produced.

The equipment necessary for FM alignment consists of the following:

- (A) An Audio Output Meter.
- (B) An AM or FM Signal Generator that will supply a 27.75 MC, 105 MC and 108 MC signal.

## ALIGNMENT PROCEDURE

- (A) Connect Output Meter across voice coil of speaker.
- (B) Remove jumper wire from terminals #1 and #2 on loop terminal strip.
- (C) Connect the hot Signal Generator lead through a 300 Ohm Resistor to the #1 post on terminal strip and the other lead to the post marked #3.

### 27.75 MC PLATE COIL ADJUSTMENT

- (A) Set Signal Generator to deliver a modulated 27.75 MC Signal.
- (B) Adjust 27.75 MC Plate Coil Trimmer for maximum reading on Output Meter.

### 108 MC and 105 MC ADJUSTMENT

- (A) Set Signal Generator to deliver a modulated 108 MC signal.
- (B) Tune receiver dial to MINIMUM CAPACITY STOP.
- (C) Adjust 108 MC Oscillator Trimmer for maximum reading on Output Meter.
- (D) Tune receiver dial and Signal Generator to 105 MC.
- (E) Adjust 105 MC Antenna Trimmer for maximum reading

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